AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently amended) An isolated nucleic acid coding for a polypeptide having acyl-CoA:lysophospholipid-acyltransferase activity, wherein the isolated nucleic acid comprises a nucleotide sequence having at least 80% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide having at least 80% identity to the polypeptide sequence of SEQ ID NO: 2, wherein the acyl-CoA:lysophospholipid acyltransferase encoded by said nucleic acid specifically ~~converts~~ uses C_{16}, C_{18}-, C_{20}- or C_{22}-fatty acids having at least one double bond ~~in the fatty acid molecule~~ as substrate.

2. (Previously presented) The isolated nucleic acid of claim 1, wherein the nucleic acid comprises the nucleotide sequence of SEQ ID NO: 1 or encodes a polypeptide comprising the amino acid sequence of SEQ ID NO: 2.

3. (Previously presented) The isolated nucleic acid of claim 1, which is derived from a eukaryote.

4. (Withdrawn) An amino acid sequence encoded by the isolated nucleic acid of claim 1.

5. (Currently amended) A ~~gene construct~~ expression cassette comprising the isolated nucleic acid of claim 1, wherein said nucleic acid is functionally linked to one or more regulatory signals.

6. (Currently amended) The ~~gene construct~~ expression cassette of claim 5, further comprising additional biosynthetic genes of the fatty acid or lipid metabolism, selected from the group consisting of acyl-CoA dehydrogenase(s), acyl-ACP[= acyl carrier protein] desaturase(s), acyl-ACP thioesterase(s), fatty acid acyltransferase(s), fatty acid synthase(s), fatty acid hydroxylase(s), acetyl-coenzyme A carboxylase(s), acyl-coenzyme A oxidase(s), fatty acid desaturase(s), fatty acid acetylenases, lipoxygenases, triacylglycerol lipases, allenoxide synthases, hydroperoxide lyases and fatty acid elongase(s).

7. (Currently amended) The ~~gene construct~~ expression cassette of claim 5, further comprising additional biosynthetic genes of the fatty acid or lipid metabolism, selected from the group consisting of Δ4-desaturase, Δ5-desaturase, Δ6-desaturase, Δ8-desaturase, Δ9-desaturase, Δ12-desaturase, Δ5-elongase, Δ6-elongase and Δ9-elongase.

8. (Currently amended) A vector comprising the nucleic acid of claim 1, or ~~a gene construct~~ an expression cassette comprising said nucleic acid functionally linked to one or more regulatory signals.

9. (Withdrawn, currently amended) A transgenic nonhuman organism comprising at least one nucleic acid of claim 1, ~~a gene construct~~ an expression cassette comprising said nucleic acid functionally linked to one or more regulatory signals, or a vector comprising said nucleic acid or said ~~gene construct~~ expression cassette.

10. (Withdrawn) The transgenic nonhuman organism of claim 9, which organism is a microorganism, a nonhuman animal or a plant.

11. (Withdrawn) The transgenic nonhuman organism of claim 9, which organism is a plant.

12. (Withdrawn) A process for producing polyunsaturated fatty acids in an organism, wherein said process comprises:

a) introducing into an organism at least one nucleic acid coding for a polypeptide having acyl-CoA:lysophospholipid-acyltransferase activity, and

d) culturing and harvesting said organism,

wherein the nucleic acid comprises a nucleotide sequence selected from the group consisting of:

i) the nucleotide sequence of SEQ ID NO: 1,

ii) a nucleotide sequence having at least 80% identity to the nucleotide sequence of SEQ ID NO: 1,

iii) a nucleotide sequence encodes the polypeptide sequence of SEQ ID NO: 2, and

iv) a nucleotide sequence encodes a polypeptide having at least 80% identity to the polypeptide sequence of SEQ ID NO: 2.

13. (Withdrawn) The process of claim 12, wherein the process further comprises introducting additional nucleic acid sequences into said organism, wherein the additional nucleic acid sequences code for polypeptides of the fatty acid or lipid metabolism selected from the group consisting of acyl-CoA-dehydrogenase(s), acyl-ACP[= acyl carrier protein] desaturase(s),

acyl-ACP thioesterase(s), fatty acid acyltransferase(s), fatty acid synthase(s), fatty acid hydroxylase(s), acetyl-coenzyme A carboxylase(s), acyl-coenzyme A oxidase(s), fatty acid desaturase(s), fatty acid acetylenases, lipoxygenases, triacylglycerol lipases, allenoxide synthases, hydroperoxide lyases and fatty acid elongase(s).

14. (Withdrawn) The process of claim 12, wherein the process further comprises introducing additional nucleic acid sequences into the organism, wherein the additional nucleic acid sequences code for polypeptides selected from the group consisting of Δ4-desaturase, Δ5-desaturase, Δ6-desaturase, Δ8-desaturase, Δ9-desaturase, Δ12-desaturase, Δ5-elongase, Δ6-elongase and Δ9-elongase activity.

15. (Withdrawn) The process of claim 12, wherein C_{16}-, C_{18}-, C_{20}- or C_{22}-fatty acids are used as substrate of the acyl-CoA:lysophospholipid acyltransferases.

16. (Withdrawn) The process of claim 12, wherein the polyunsaturated fatty acids are isolated from the organism in the form of an oil, lipid or a free fatty acid.

17. (Withdrawn) The process of claim 12, wherein the polyunsaturated fatty acid produced in said process is a C_{18}-, C_{20}- or C_{22}-fatty acids having at least two double bonds in the molecule.

18. (Withdrawn) The process of claim 12, wherein the polyunsaturated fatty acid produced is dihomo-γ-linolenic acid, arachidonic acid, eisosapentaenoic acid, docosapentaenoic acid or docosahexaenoic acid.

19. (Withdrawn) The process of claim 12, wherein the organism is a microorganism, a nonhuman animal or a plant.

20. (Withdrawn) The process of claim 12, wherein the organism is a transgenic plant.

21. (Withdrawn) The process of claim 20, wherein the transgenic plant is an oil crop plant.

22. (Withdrawn) An oil, a lipid or a fatty acid or a fraction thereof, prepared by the process of claim 12.

23. (Withdrawn) An oil composition, a lipid composition or a fatty acid composition which comprises polyunsaturated fatty acids produced by the process of claim 12 and is derived from transgenic plants.

24. (Canceled)

25. (Withdrawn) A method of making feed, foodstuffs, cosmetics or pharmaceuticals comprising incorporating the polyunsaturated fatty acids prouced by the process of claim 12, or an oil composition, a lipid composition, or a fatty acid composition comprising said polyunsaturated fatty acids that are derived from transgenic plants in said feed, foodstuffs, cosmetics or pharmaceuticals.

26-29. (Cancelled)

30. (Previously presented) The isolated nucleic acid of claim 1, wherein the nucleic acid comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide has at least 90% identity to the polypeptide sequence of SEQ ID NO: 2.

31. (Previously presented) The isolated nucleic acid of claim 1, wherein the nucleic acid comprises a nucleotide sequence having at least 95% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide has at least 95% identity to the polypeptide sequence of SEQ ID NO: 2.

32. (Withdrawn) The process of claim 12, wherein the nucleic acid comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide having at least 90% identity to the polypeptide sequence of SEQ ID NO: 2.

33. (Withdrawn) The process of claim 12, wherein the nucleic acid comprises a nucleotide sequence having at least 95% identity to the nucleotide sequence of SEQ ID NO: 1, or encodes a polypeptide having at least 95% identity to the polypeptide sequence of SEQ ID NO: 2.